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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/026,052	12/21/2001	James Allam Forster	TI-32569	8700
23494	7590	01/26/2005		
TEXAS INSTRUMENTS INCORPORATED P O BOX 655474, M/S 3999 DALLAS, TX 75265			EXAMINER MITCHELL, JAMES M	
			ART UNIT 2813	PAPER NUMBER

DATE MAILED: 01/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/026,052

Applicant(s)

FORSTER, JAMES

Examiner

James M. Mitchell

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-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 October 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6, 10-12 and 29-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 10-12 and 29-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

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DETAILED ACTION

This office action is in response to the amendment filed October 15, 2004.

Allowable Subject Matter

The indicated allowable subject matter of claim 14 is withdrawn in view of the newly discovered reference(s) to Fukasawa (U.S 6,246,249). Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2-4, 6, 10, 11, 29, 30, 33 and 34 are rejected under 35

U.S.C. 102(e) as being anticipated by Fukasawa et al. (U.S. 6,246,249).

Fukasawa (Fig 1A, B, 3B) discloses (cl. 1, 29) an apparatus for testing having an array of solder-ball contacts or connection probes of a selected size, said solder-ball contacts having a contact area and a peripheral area, comprising: a support substrate (13, 12a) having a working surface; a multiplicity of conductive pads (11; Fig 1A) mounted on said working surface; a multiplicity of conductive pathways extending from said multiplicity of conductive pads (Fig 1B) to test circuitry; at least one conductive member (16) formed on each of said

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multiplicity of conductive pads and extending away from said working surface, said at least one conductive member comprising a stud bump on top of another stud bump (Fig 3B) of the same composition (i.e. both materials indicated as 16 in contrast to Fig 4B), and said conductive members formed on said conductive pads positioned on said support substrate to make an electrical connection with said peripheral area of said solder- ball contacts or connection points (2) of a circuit placed against said apparatus; (cl. 2-4) with two conductive member (left and center conductive members; Fig 3B) located to receive peripheral area of solder ball (2; Col. 14, Lines 11-13) and three and four members located to form nest (Fig 3A); (cl. 10) and the substrate (12, 13) lies in a plane and therefore is planar; (cl. 11) with conductive pathways (11: Fig 1B) on the substrate; (cl. 30) with a wire extending from stud bumps ("pointed" portion of bump; Col. 13, Lines, 44-50); (cl. 34) wherein one conductive member (16) is formed on each of said multiplicity of conductive pad portions (Fig 3A; 14C-2).

With respect to the process limitations of for example claims 1 and 6, even though Fukasawa explicitly teaches use of a wire bonding method (Col. 13, Lines 44-45), these process limitations such as "wire bonder" and "conductive member... comprises a length of wire," determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

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Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5, 32 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukusawa (U.S. 6,246,249) as applied to claim 1 and 19 and further in combination with Ball (U.S. 6,420,256).

Fukasawa does not explicitly disclose that both bumps are gold, however Ball teaches the use of gold wire bumps (col. 3, Lines 38-43).

It would have been obvious to one of ordinary skill in the art to form the wire bumps from gold in order to eliminate oxides formed on the bump as taught by Ball (Col. 3, Lines 38-43).

With respect to aluminum wire bumps, examiner takes official notice that aluminum wire bumps were well known in the art at the time the invention was made and that it would have been obvious to form the bumps of Fukasawa form aluminum in order to match materials of a contact (solder ball etc.),

Furthermore, it has been held that to be within the general skill of a worker in the art to select known material on the basis of its suitability for intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

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Claims 1 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin (U.S. 258,648) in combination with Fukasawa (U.S. 6,246,249).

Lin (Fig5) discloses (cl. 1, 12) an apparatus for testing having an array of solder-ball contacts (26) or connection probes of a selected size, said solder-ball contacts having a contact area and a peripheral area, comprising: a support substrate ("interposer" 22) having a working surface; a multiplicity of conductive pads (26) mounted on said working surface; a multiplicity of conductive pathways extending from said multiplicity of conductive pads (PTH) to test circuitry; (cl. 12) wherein the pathways a surface opposite said working surface (i.e. portion mounted by chip) and extend through (i.e. PTH) insulating material (22).

Lin does not show at least one conductive member formed on each of said multiplicity of conductive pads and extending away from said working surface, said at least one conductive member comprising a stud bump on top of another stud bump of the same composition to make an electrical connection with said peripheral area of said solder- ball contacts or connection points of a circuit placed against said apparatus.

Fukasawa (Fig 3B) utilizes at least one conductive member formed on each of said multiplicity of conductive pads and extending away from said working surface, said at least one conductive member comprising a stud bump on top of another stud bump (16) of the same composition to make an electrical connection with said peripheral area of said solder- ball.

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It would have been obvious to one of ordinary skill in the art to incorporate a conductive member, such that it forms a stud bump on top of another stud bump of the same composition and make connection with said peripheral area of ball contacts or connection points in order improve electrical connection as taught by Fukasawa (Col. 13, Lines 64-67).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James M. Mitchell whose telephone number is (571) 272-1931. The examiner can normally be reached on M-F 8:00-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead Jr. can be reached on (571) 272-1702. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



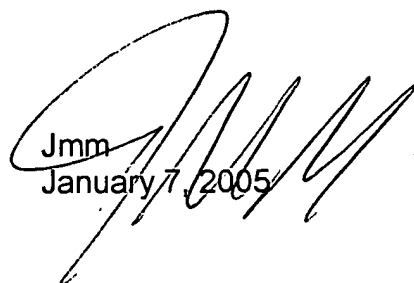
**CRAIG A. THOMPSON
PRIMARY EXAMINER**

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Jmm
January 7, 2005

A large, stylized handwritten signature in black ink, consisting of several loops and strokes, is written over the typed text.